Fiscal Research Program

THE GEORGIA SALES TAX REVENUE IMPACT FROM ELECTRONIC COMMERCE

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FRP Report No. 56
March 2001

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Acknowledgments

The author acknowledges the valuable assistance Phil Embry and the sales tax division staff at the Georgia Department of Revenue provided during the preparation of this report.

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Introduction

The new online environment has clearly enhanced electronic commerce in the United States, and many Georgia residents now choose to purchase in online markets (i.e., from remote sellers) rather than from local vendors. The State, however, does not have the authority to require remote sellers to collect sales tax, and thus, like catalog purchases, e-commerce purchases represent an opportunity for people to avoid paying state and local sales taxes. Many expect that the growth in e-commerce will adversely affect Georgia's state and local tax collections. This report presents estimates of the potential revenue loss of sales taxes for each Georgia county for 2004.

In order to determine the revenue risk to local sales tax collections from electronic commerce, four dimensions of the new marketplace are borrowed from the e-commerce literature. The factors address whether the relevant commodities are: homogeneous (across retailers), relatively easy to ship, appealing in large selection, and rarely replenished. We expect that the greater the number of the criteria that a commodity satisfies, the heavier the sales tax revenue loss due to competition from online vendors. Likewise, we expect little risk of revenue loss when no criteria are met. In this paper, online market projections from Forrester Research (published in Williams 1999) are applied to county-level Georgia taxable sales according to the number of factors met for commodity groups, in order to estimate the magnitude of the potential sales tax loss by each county. A revenue loss estimate under a worse-case scenario is also calculated for each county.

The Georgia data indicate that, at most, 13 percent of a typical county's sales tax may face a high risk by 2004. More likely, the average Georgia county can expect a reduction of slightly more than 3 percent of its sales tax. Given the distribution of retailers across Georgia counties, the statewide sales tax revenue for each one percent tax rate should decline by about $174 million, or 3.5 percent. Additionally, the data indicate that a county's urban status and per-capita income level are important in determining the total revenue at risk. As one might expect, metropolitan counties will probably face a slightly larger revenue drain, in percentage terms, than non-metro counties, and high-income counties probably also face higher risk. These conclusions are based on the differences in the relative size of the relevant industries across counties.

The paper is organized as follows. The next section includes a brief review of the treatment of electronic commerce under the typical sales tax. In the third section, the development of the estimates, through the four dimensions of e-commerce and the Forrester Research projections, is discussed. Projected revenue losses are the subject of the fourth section. The fifth section is used to address caveats and longer-term structural changes that should occur in the Georgia economy. Concluding remarks can be found in the sixth section.

Legal and Policy Issues

Technically, electronic commerce transactions are subject to Georgia sales taxes, but out-of-state vendors cite two Supreme Court cases, *National Bellas Hess, Inc. v. Department of Revenue of the State of Illinois* and *Quill Corporation v. North Dakota*, as justification for not collecting taxes on behalf of the state and local governments. In essence, these firms can follow the catalog retailers and claim that compliance with sales taxes outside of their physical jurisdictions is too difficult.[1] The courts have ruled that unless the seller has presence in that state, i.e., has nexus, the state cannot require the seller to collect the sales tax.

When vendors do not collect Georgia's sales taxes, the purchaser, however, is responsible for remitting the corresponding use tax. In other words, if the transaction is taxable in Georgia and no tax is charged by the seller, the buyer faces a use-tax liability that equals the unpaid sales tax. But in practice, only two types of transactions actually result in use-tax payments. The first is when the purchaser is a firm that is subject to the Georgia corporate income tax and hence to a state audit.[2] The second is when the purchase must be registered in Georgia, e.g. automobiles and motorcycles, where use taxes are uniformly assessed if sufficient sales tax has not been paid.[3]

Another important set of Supreme Court cases concern the nexus issue for a remote vendor that is affiliated with a local vendor. In one important case, *SFA Folio Collections v. Tracy*, a Saks 5th Avenue mail-order affiliate successfully argued that Saks nexus in Ohio did not extend to the affiliate.[4] The worst-case scenario here is an economy where every retailer delivers goods through a remote affiliate, even when the goods are ordered in a store, and sales taxes are never collected. The more practical view, see Mikesell

[1]Analysis of the consequences from these cases can be found in Pomp and McIntyre (1996) and Fox and Murray (1997).

[2]In background discussions for this paper, Georgia Department of Revenue officials reported a general audit approach where Georgia's corporate tax filers were examined for all state and local taxes.

[3]In Georgia, however, 'casual' automobile sales between individuals are exempt and no sales or use tax is due.

[4]This case was decided by the Ohio Supreme Court, and was not heard by the U.S. Supreme Court, finding that even if an affiliate in Ohio accepts returns from the mail-order company, that does not create nexus for the latter.

(2000), is that the Supreme Court eventually will be compelled to accept a case that helps clarify the nexus issue for affiliated firms.

Two potential policy changes could dramatically reduce the sales tax revenue risk from e-commerce. The first would come through Congressional action to establish conditions under which remote vendors must comply with sales tax collection requirements. The second would come through an attempt by states to dramatically simplify sales taxes for remote vendors, weakening the difficulty-in-compliance argument for collecting sales taxes outside of states in which the seller has nexus.[5] Through the remainder of this paper, we assume that neither policy change is enacted by 2004.

[5] In fact, a group called The Streamlined Sales Tax Project has a web site (http://www.geocities.com/streamlined2000/) and lists 29 participating states. Georgia is not participating in this project.

Developing the Estimates

The method for developing Georgia estimates follows Hawkins and Eppright (2000). The goal in this process is to use national-level projections, the characteristics that determine the likelihood of online success for individual commodity groups, and the structure of sales tax base in individual Georgia counties to project revenue losses for each county. These estimates are obtained in four steps.

A. Establishing Criteria for Online Potential

Four evaluation criteria are used to decide the likelihood that a commodity group will be sold over the internet. The first criteria is homogeneity, i.e., whether the products in a particular industry are generally the same across firms. When a product is homogeneous, e.g., books and compact discs, customers face lower product-purchase risk and thus we expect more customer interest in online markets.

The second criteria is whether it is feasible to ship the industry's products.[6] In this case, the greater the ability to ship, the greater the expectation that online sales will be large. Computers and prepackaged videos are examples of goods that are highly shippable, while gasoline is not easily shipped to the final consumer.[7] In general, many services fail the ease of shipping criteria.

The third criteria is value in large selection. When buyers enjoy selecting from a wide array of products, online sellers have an advantage.[8] For example, a local retailer may only stock a dozen camera models while the online vendor can offer many more. The ability to offer more product choices should help online vendors and hurt local retailers.

The fourth and final criteria is low replenishment. McQuivey et.al. (1998) argue that buyers are more likely to contract with remote vendors when the item is something they rarely purchase and, in all likelihood, these buyers will accumulate significant product

[6]The ability to ship is similar to Sawhney's (1999) "logistical efficiency."

[7]The conversion of audio, video and the printed word to digital formats is a technological advancement that will enhance shipping of these products even further.

[8]The importance of selection was emphasized in an Ernst and Young (1999) study in which 48 percent of survey respondents reported that selection was important to their decision to shop online.

information before making this type of purchase.[9] Durable goods are an example where the replenishment issue may be important; a household might research the goods both locally and online, and then after making a purchase decision, shop online for the best price.

B. Applying the Criteria to Georgia Industries

In the second step, the four criteria are applied to the 327 industry classes for which sales and use taxes were remitted in 1999.[10] The complete matrix of the application of the criteria is available from the Fiscal Research Program, but a sample appears in Table 1.

Overall, industries were found to meet a particular criteria between 75 (low replenishment) and 226 (shippable) times. A total of 23 industries met all four criteria while 62 met none. Correlations coefficients across the industries between the four criteria were surprisingly low, ranging from -0.15 to 0.36. These statistics serve as a limited verifier on the independence of the four criteria.

It is important to note that the above criteria are not applied to automobiles, boats and airplanes. We anticipate zero revenue loss for these commodities due to use tax enforcement at time of registration. As mentioned, casual automobile sales are not subject to sales or use taxes, but it isn't clear how online markets will affect the decision to sell a car oneself. If online markets reduce the cost of consumer-to-consumer sales, used-automobile revenues should fall sharply.

C. Applying the Criteria to Forrester Research Projections

For the third step, the same online-potential criteria are applied to the e-commerce projections developed by Forrester Research. The Forrester projections appear in Table 2,

[9]There are, however, some counterexamples to this argument. One can expect many Georgians to regularly replenish prescription drugs through online vendors.

[10]Industry classes are measured at the three-digit SIC level. We use industry instead of product categories because data is not available by product category.

TABLE 1. SAMPLE OF ONLINE-POTENTIAL CRITERIA AND GEORGIA INDUSTRIES

Industry	SIC	1999 Local Sales Tax Revenue (Thousands)	Homogeneous Products	Shipping Feasibility	Value in Large Selection	Low Replenish-ment
Farm and garden machinery manufacturing	352	$6,822.3	yes	yes	yes	yes
Taxicabs	412	778.9	yes	no	no	no
Telephone communication	481	52,555.1	no	no	no	no
Lumber and construction materials wholesalers	503	18,418.4	yes	yes	no	no
Lumber and other building materials retailers	521	168,314.3	yes	yes	no	yes
Grocery stores	541	349,752.4	no	yes	yes	no
Radio, television, and computer stores	573	123,011.3	yes	yes	yes	yes
Eating and drinking places	581	209,316.3	no	no	yes	no
Personal credit institutions	614	1.0	yes	yes	no	yes
Hotels and motels	701	60,076.4	no	no	no	no
Beauty shops	723	349.5	no	no	no	no
Automotive repair shops	753	17,766.4	yes	no	no	yes

Source: Author's calculations based on Georgia Department of Revenue data. The complete application dat are available from the Fiscal Research Program.

TABLE 2. U.S. ONLINE RETAIL PROJECTIONS BY CATEGORY (2004)

Category	Online Sales (Millions)	Percent of Total Retail Sales for Category
Software	$3,290	50
Books	3,279	16
Music	4,286	25
Video	1,743	15
Event Tickets	3,929	14
General Apparel	22,516	11
Footwear	1,085	2
Accessories	3,527	9
Flowers	2,472	13
Greetings	798	8
Specialty Gifts	1,389	13
Household Goods	5,775	8
Toys	3,663	10
Sporting Goods	4,220	8
Tools and Garden	7,156	5
Computer Hardware	12,541	40
Consumer Electronics	11,670	10
Appliances	2,023	9
Furniture	3,884	5
Food and Beverage	16,863	3
Health and Beauty	10,335	5

Source: Forrester Research, Inc. (published in Williams (1999)). Used with permission.

but they cannot be directly applied to Georgia for three reasons. First, the commodities are not a random sample. Rather, they indicate areas where Forrester researchers expect strong online-market growth is likely. Second, Forrester's projections are for the national economy and do not specifically reflect the structure of the Georgia economy. Finally, sales tax revenues are collected across hundreds of industries and Forrester researchers may have failed to consider some industries with strong online potential.

Therefore, the four characteristics from step 1 are applied to the Forrester projection categories. This conversion gives an online-market-share estimate according to the number of characteristics met. For example, 18 Forrester categories meet all four criteria and the online-market share estimates range between 2 (footwear) and 50 (software) percent.

The results of this application are summarized in Table 3. The table includes several summary statistics for the Forrester projections according to the number of criteria met. For this study, the weighted-average measure (the final column) are applied to the Georgia industries to develop our best estimate of online-market growth and local sales tax loss. As mentioned above, Forrester researchers are particularly interested in online markets and it is not surprising that every retail category listed in Table 3 meets at least two of the online-potential criteria.

D. Transferring Forrester Research Projections to Georgia Sales Tax Bases

From the Forrester projections, industries which meet all four criteria should experience online-market growth to slightly more than 10 percent of total sales in 2004 (calculated in the right hand side of Table 3). Accordingly, Georgia state and local governments can expect to lose roughly 10 percent of these revenues. For example, local governments collected $123 million from Radio, Television and Computer Stores in 1999 (SIC code 573 in Table 1) and the revenue loss in this category should be on the order of $12.3 million.

For industries that meet three, two and one of the criteria, we apply revenue-loss estimates of 6, 3, and 1 percent. The first of these two follow the Forrester projections (the right hand column of Table 3). The latter bottom rows of this column include a conservative projection that maintains the downward trend. When an industry meets none of the four criteria, we assume zero revenue loss.

TABLE 3. SUMMARY OF THE FORRESTER RESEARCH U.S. ONLINE RETAIL PROJECTIONS BY NUMBER OF ONLINE-POTENTIAL CRITERIA SATISFIED

Number of Online-Potential Criteria Satisfied	Number of Retail Categories	Online Market Share in 2004 (Percent)			
		Median	Minimum	Maximum	Dollar-Weighted Average
Four	18	10	2	50	10.07
Three	2	—	5	14	6.08
Two	1	3	3	3	3.00
One	0	—	—	—	—
Zero	0	—	—	—	—

Note: "Event tickets" failed the *value in selection* criteria, "Health and Beauty" failed the *low replenishment* criteria and "Food and Beverages" failed both the *homogeneity* and *low replenishment* criteria.

Source: Authors' calculations for data from Forester Research, Inc.

Findings

Because local sales tax rates differ across counties, we report dollar revenue loss for a one percent sales tax. The estimates for individual counties appear in the Appendix and are summarized in Table 4 and Table 5. By 2004, the typical Georgia county can expect to lose between 2 and 4 percent of total sales tax revenues to e-commerce. The statewide average is 3.5 percent, reflecting the distribution of the individual county estimates.

Within the expected revenue loss estimates, one finds a large concentration between 3 and 4 percent (Table 5). Roughly two thirds of the counties feature a projection in that range. For another 28 percent of the state's counties, the estimates are between 2 and 3 percent. Very few estimates exist below 2 percent or above 4 percent.

The Georgia estimates are consistent with the other literature on the sales tax revenue impact from e-commerce. For example, Goolsbee and Zittrain (1999) estimated the effect to be about two percent across all taxing jurisdictions in the U.S. Cline and Neubig (1999) examined the nature of e-commerce transactions, finding that only about thirteen percent of e-commerce transactions could be subject to state and local sales taxes.[11] Finally, Bruce and Fox (2000) estimated the e-commerce impact in the context of declining tax bases and project a Georgia state and local revenue loss of about $333.4 million, a total that is only slightly larger in percentage terms than the estimates in the Appendix.

There are two reasons for the somewhat low estimates both here and in the other studies. First, as can be observed in Table 6, the transactions with the greatest e-commerce threat account for only $348.9 million in local sales taxes (roughly 12 percent of all local sales tax dollars). In fact, the relatively safe automobile dealers and electric services (utilities) remit more Georgia sales and use taxes than the top ten categories meeting the high-threat classification (i.e., meeting all four characteristics for online potential).

[11]Obviously, many of these vendors will collect sales taxes either because the firm has nexus or the management is concerned about the future sales tax environment.

TABLE 4. SUMMARY OF 2004 COUNTY REVENUE LOSS ESTIMATES BY EXPECTED REVENUE LOSS

	Expected Revenue Loss	Revenue Loss Under Worst-Case Scenario
Statewide	3.5%	10.0
County Average	3.1	8.0

Source: Author's calculations based on Georgia Department of Revenue data.

TABLE 5. DISTRIBUTION OF 2004 COUNTY REVENUE LOSS ESTIMATES BY EXPECTED REVENUE LOSS

Expected Revenue Loss	Number of Counties	Average Revenue Loss Under Worst-Case Scenario	Average Share of Tax Base at High Risk
Greater Than 5%	1	20.5%	35.8%
Between 4 and 5%	2	11.0	10.7
Between 3 and 4%	107	8.7	9.3
Between 2 and 3%	45	6.5	6.8
Between 1 and 2%	3	4.2	4.0
Between 0 and 1%	1	1.8	1.5

Notes: The largest expected revenue-loss estimate, 5.6 percent, was obtained for Twiggs County and is primarily due to remittances from a manufacturer of durable goods.
Source: Author's calculations based on Georgia Department of Revenue data.

TABLE 6. REVENUE TOTALS FOR TEN INDUSTRIES WITH THE GREATEST AND TEN INDUSTRIES WITH THE LEAST REVENUE LOSS POTENTIAL

SIC	Description	Total Local Revenue (1999)
	Largest Industries Meeting Four Criteria	
358	Refrigeration and service machinery	$2,784,796
525	Hardware stores	4,787,960
523	Paint, glass, and wallpaper stores	6,140,167
352	Farm and garden machinery	6,822,275
526	Retail nurseries and garden stores	7,955,218
572	Household appliance stores	16,424,827
553	Auto and home supply stores	32,434,141
735	Misc. equipment rental and leasing	56,930,401
594	Miscellaneous shopping goods stores	91,609,924
573	Radio, television, and computer stores	123,011,268
	Grand Total	**$348,900,977**
	Largest Industries Meeting Zero Criteria	
738	Miscellaneous business services	$6,643,951
598	Fuel dealers	7,935,729
592	Liquor stores	18,570,964
799	Misc. amusement, recreation services	29,752,054
552	Used car dealers	42,742,619
554	Gasoline service stations	51,621,494
481	Telephone communication	52,555,060
701	Hotels and motels	60,076,396
491	Electric services	211,525,069
551	New and used car dealers	213,969,466
	Grand Total	**$695,392,802**

Source: Author's calculations based on Georgia Department of Revenue data.

TABLE 7. REVENUE LOSS PROJECTIONS IN 2004 BY SELECTED COUNTY CHARACTERISTICS

	Expected Revenue Loss	Tax Base at Greatest Risk	Tax Base at Minimal Risk	Exhibit: Number of Counties
Average For				
Rural Counties	3.0%	8.2%	30.2%	117
Urban Counties	3.3	9.9	27.2	42
Average For				
High Income Counties	3.3	9.5	27.1	53
Middle Income Counties	3.1	8.2	29.4	53
Low Income Counties	2.9	8.0	31.8	53

Source: Author's calculations based on Georgia Department of Revenue data.
Notes: Tax base at greatest risk is the share of the base meeting all four criteria. Tax base at minimal risk is the share meeting zero criteria. The high income definition includes counties with 1998 per-capita income above $20,634. The middle income definition includes counties between $18,279 and $20,634.

Second, the Forrester projections indicate that even the high-threat industries should only lose about ten percent of their total market sales to online transactions. This projection is the primary reason the range for the county estimates is relatively small.

Tables 4 and 5 and the Appendix also include a worst-case projection, i.e., projection under which counties are assumed to lose 50 percent of revenues from high-threat industries and 14 percent of revenues from industries that meet three criteria (values taken from the maximum column in Table 3). Under this scenario, the typical Georgia county would lose around 8 percent of the sales tax base, with more than a dozen estimates in double digits. For the state government, the revenue loss is on the order of 10 percent and would account for about $494 million. These are more substantial tax dollars, but in perspective, even these estimates are smaller than the loss from the food exemption that began in 1996.[12] Finally, in a separate simulation, not shown, the sensitivity of the expected revenue-loss estimates was examined by boosting the high-threat revenue loss alone to 15 percent. Here, the statewide estimate increased to 4.4 percent, meaning that if the high-threat industries lose 50 percent more than we considered above, the typical county could expect additional revenue loss of about 1 percent.

Two sources for variation in the revenue loss projections are examined in Table 6. The first, urban status, indicates that urban counties are slightly more dependent on threatened industries. This urban average increases to 3.3 percent, but it should be noted that households in rural counties may face greater transportation costs for local shopping, and that these revenue-loss projections do not reflect differences in resident population.[13]

[12] Bahl and Hawkins (1997).

[13]Of course, one could also claim that the tax base for rural counties already reflects more catalog shopping by rural households.

A second, related source of the variation in the revenue-loss projections is county income. In the bottom half of Table 6, the counties have been divided, according to income, into thirds. The data indicate that high-income counties should expect slightly greater percentage declines to e-commerce (again, 3.3 percent). These differences are somewhat consistent with Goolsbee (1998), who found that high-income households were more likely to shop online, but differ in that the estimates here reflect what is sold and collected in high-income areas versus the items and shopping methods that high-income households choose.

Caveats

As with any forecast, there are several conditions that could result in errors in the estimated projections. Eppright and Hawkins (2000) find three basic sources for uncertainty in the growth of e-commerce. The first is the potential for additional factors that effect the decision to buy online. For example, the value of a salesperson is generally discounted in discussions of growing e-commerce markets. If this value is underestimated in the literature, sales tax erosion is more limited. Second, the structure of retail trade could be changing to enhance e-commerce. If the shopping mall of the next decade features many small stores with valuable salespeople and computer kiosks for ordering online, sales tax erosion could increase dramatically.[14] Finally, technology can shift the strength of the e-commerce factors and one could find a virtual salesperson who generates more value than the local human counterpart.

At this point, the full impact of consumer behavior in response to the new online markets is not clearly understood. If e-commerce is a substitute for traditional commerce, state and local sales tax revenue impacts may be large. Conversely, if catalog sales are a stronger substitute, the impacts may be minimal as taxes on catalog sales are already uncollected. Finally, buyers may save money with online purchases, but it is not clear how this saving will impact total taxable spending. Purchases of exempt services could proliferate from the savings, representing an indirect form of sales tax erosion from e-commerce. Conversely, consumers could use the savings from online purchases to buy more taxable goods and services in the jurisdiction. These are just a few of the topics that require further research toward understanding the complete impact of the new online markets on state and local tax revenues.

The supplier side of the changing Georgia economy is also important to the ultimate revenue impact from e-commerce. Roughly 17 percent of Georgia's non-farm employment is in retail trade, and if a major restructuring is taking place, one would expect new job growth and new sources of state and local revenue in other sectors as the retail industry lags. Alternately, the last couple of years could represent a period in which

[14]It is unclear whether management for these 'bricks and clicks' hybrids can structure their company to serve a customer locally and still not create nexus for shipping the good from out of state. Throughout this study, we have assumed that an online sale means no revenue for the state or local government. There are examples, however, where remote vendors are compelled to collect and remit sales tax to Georgia.

local retailers developed new strategies to fight online competition. For example, golf-club and computer-software vendors may concentrate on selling a commodity bundle that includes the product and instructions on how to use it, rather than focusing on highly-competitive goods themselves. Again, the answers to these questions will be important to the final sales tax revenue impact from e-commerce.

Conclusions

Growth in e-commerce represents a new threat to state and local sales tax revenues because the state does not have the ability to force remote vendors to collect these taxes. Some expect a revenue crisis from this predicament; this paper represents an attempt to quantify the amount of Georgia revenue at risk.

Across Georgia, sales tax revenues can be expected to decline between 2 and 4 percent by 2004. Tax collections from high-risk vendors are considerably smaller than from low-risk vendors and this structural feature of the Georgia economy helps insulate the total revenue yield from e-commerce. The economic structure of urban and high-income counties indicates that tax revenue in these counties will suffer slightly more than in rural and low-income counties.

The sales tax structure in Georgia follows the depression-era model, collecting on intra-state inventory transfers when the good cannot be traced to a future user. These structures have missed a great deal of the growth in the post World-War-II economy — stagnating sales tax revenues relative to the Georgia economy — but they also appear to miss a good deal of the internet economy. State and local budgets will lose sales tax collections on software, recorded music and the other high-profile items, but will probably continue to collect sizable revenues from the intra-Georgia inventory transfers that the sales tax was founded on.

Appendix.

Revenue Loss Estimates for Georgia Counties As a Share of Revenue

County	Expected Revenue Loss	Worst-Case Revenue Loss Estimate	Percent of Tax Base at Greatest Risk	Revenue Loss Per One Percent Tax
GEORGIA	3.5%	9.9%	12.2%	43,464,118
APPLING	1.8%	4.4%	4.2%	45,135
ATKINSON	2.7	6.4	6.9	12,780
BACON	2.8	6.3	5.8	26,260
BAKER	2.6	7.0	8.6	6,916
BALDWIN	3.3	8.2	7.3	156,310
BANKS	3.4	9.4	11.2	61,622
BARROW	2.8	7.0	6.8	133,925
BARTOW	2.6	6.7	6.3	307,486
BEN HILL	3.0	7.9	8.3	65,579
BERRIEN	3.2	8.5	8.5	34,467
BIBB	3.5	9.9	11.9	916,694
BLECKLEY	3.2	8.1	8.7	27,990
BRANTLEY	2.7	5.8	4.2	20,373
BROOKS	3.1	8.3	9.2	28,623
BRYAN	2.6	5.6	4.7	47,451
BULLOCH	3.7	9.6	8.7	254,924
BURKE	2.1	5.1	5.3	48,091
BUTTS	4.2	12.3	16.1	74,586
CALHOUN	3.0	8.4	9.8	11,734
CAMDEN	3.0	6.8	5.8	138,483
CANDLER	2.6	6.4	6.9	28,770
CARROLL	3.5	8.7	8.4	349,065
CATOOSA	3.4	8.1	5.4	206,668
CHARLTON	3.0	6.9	7.1	21,783
CHATHAM	3.4	9.6	11.4	1,355,608
CHATTAHOOCHEE	3.5	9.3	11.3	10,256
CHATTOOGA	3.3	8.1	8.0	67,053
CHEROKEE	3.4	8.4	6.9	542,673
CLARKE	3.8	11.1	14.2	586,522
CLAY	2.7	6.5	7.4	9,708
CLAYTON	3.0	7.4	8.2	1,371,569
CLINCH	2.9	7.0	7.2	18,709
COBB	3.6	10.5	13.6	6,934,738
COFFEE	3.5	9.3	8.8	164,569
COLQUITT	3.3	8.9	8.9	137,647

County	Expected Revenue Loss	Worst-Case Revenue Loss Estimate	Percent of Tax Base at Greatest Risk	Revenue Loss Per One Percent Tax
COLUMBIA	3.3	8.3	7.5	272,310
COOK	2.7	6.1	5.2	45,674
COWETA	3.3	8.5	7.6	365,190
CRAWFORD	3.0	7.7	7.7	14,506
CRISP	3.2	8.2	7.3	95,210
DADE	2.4	4.6	3.8	38,362
DAWSON	3.5	8.1	6.3	92,870
DECATUR	3.4	8.6	8.8	112,877
DEKALB	3.6	11.1	15.2	3,133,562
DODGE	3.3	8.3	7.5	53,623
DOOLY	2.6	6.9	8.3	25,662
DOUGHERTY	3.5	9.7	11.0	521,158
DOUGLAS	3.4	8.6	8.6	422,075
EARLY	3.0	6.8	7.7	41,069
ECHOLS	3.0	7.5	5.3	3,362
EFFINGHAM	3.1	7.2	4.1	101,769
ELBERT	3.2	8.5	9.3	57,972
EMANUEL	3.3	8.3	7.8	59,783
EVANS	3.0	7.4	7.5	28,843
FANNIN	3.6	10.3	13.3	79,708
FAYETTE	3.5	9.4	9.5	471,705
FLOYD	3.4	8.9	9.0	426,647
FORSYTH	3.9	11.0	12.4	561,120
FRANKLIN	2.9	6.2	5.9	74,380
FULTON	3.8	12.3	18.4	6,928,864
GILMER	3.5	9.3	9.1	81,095
GLASCOCK	2.8	7.4	9.0	5,697
GLYNN	3.0	7.8	8.4	412,066
GORDON	3.5	8.9	8.6	218,687
GRADY	3.0	7.5	7.2	57,115
GREENE	3.4	9.3	11.0	57,002
GWINNETT	3.9	11.6	15.1	3,916,382
HABERSHAM	3.7	9.2	7.9	160,928
HALL	3.5	9.2	9.4	675,292
HANCOCK	2.9	6.6	5.4	12,180
HARALSON	2.5	5.9	6.1	47,788
HARRIS	2.1	5.2	5.8	36,430
HART	3.0	7.2	5.4	68,168
HEARD	0.8	1.8	1.5	13,145

County	Expected Revenue Loss	Worst-Case Revenue Loss Estimate	Percent of Tax Base at Greatest Risk	Revenue Loss Per One Percent Tax
HENRY	3.4	8.7	8.0	447,721
HOUSTON	3.2	8.4	8.5	402,642
IRWIN	3.0	8.7	11.8	15,313
JACKSON	3.2	7.7	7.4	172,759
JASPER	2.7	6.2	6.0	22,738
JEFF DAVIS	3.6	10.0	11.0	55,455
JEFFERSON	3.0	7.6	8.5	44,842
JENKINS	2.6	5.9	5.1	13,506
JOHNSON	2.5	5.6	4.8	10,473
JONES	3.3	8.6	11.1	52,534
LAMAR	2.8	6.7	6.9	31,405
LANIER	2.9	7.3	8.0	10,619
LAURENS	3.4	8.5	8.3	197,915
LEE	3.0	7.6	8.5	36,612
LIBERTY	3.0	7.5	6.7	126,807
LINCOLN	3.0	7.5	8.0	14,937
LONG	2.6	5.5	3.5	7,818
LOWNDES	3.6	9.5	9.5	516,231
LUMPKIN	3.6	9.7	8.3	76,001
MACON	3.2	7.9	9.1	37,446
MADISON	3.2	8.4	9.9	41,226
MARION	3.1	8.0	9.0	13,919
MCDUFFIE	3.4	8.5	7.0	95,080
MCINTOSH	3.2	6.9	5.5	44,391
MERIWETHER	3.1	7.7	7.4	48,163
MILLER	2.8	7.9	9.9	14,072
MITCHELL	3.4	8.9	9.3	59,531
MONROE	1.4	3.5	3.2	55,113
MONTGOMERY	3.3	10.1	14.2	13,093
MORGAN	3.2	8.2	8.4	54,948
MURRAY	3.1	8.1	9.7	82,238
MUSCOGEE	3.9	11.7	15.4	1,088,274
NEWTON	3.4	8.8	8.8	214,488
OCONEE	4.0	9.6	5.3	101,147
OGLETHORPE	2.7	7.5	8.9	14,484
PAULDING	3.3	7.8	4.9	211,416
PEACH	2.8	6.3	5.9	63,277
PICKENS	2.8	8.0	10.2	69,934
PIERCE	2.9	7.1	6.7	32,183

County	Expected Revenue Loss	Worst-Case Revenue Loss Estimate	Percent of Tax Base at Greatest Risk	Revenue Loss Per One Percent Tax
PIKE	3.0	8.2	9.3	18,464
POLK	3.2	7.8	7.3	99,611
PULASKI	3.3	8.9	11.8	25,549
PUTNAM	2.1	5.3	5.6	54,144
QUITMAN	3.1	7.0	8.6	4,882
RABUN	3.1	7.4	6.8	58,282
RANDOLPH	3.6	11.3	16.2	20,827
RICHMOND	3.6	10.3	13.2	1,070,316
ROCKDALE	3.5	9.4	9.5	394,071
SCHLEY	3.3	9.4	12.0	9,576
SCREVEN	3.1	7.2	6.3	33,420
SEMINOLE	2.7	6.9	7.9	22,280
SPALDING	3.4	8.9	8.7	251,897
STEPHENS	3.4	8.4	7.7	95,261
STEWART	2.9	7.5	9.1	8,421
SUMTER	3.7	10.5	12.0	133,116
TALBOT	2.4	5.6	5.9	9,047
TALIAFERRO	1.9	4.6	4.5	1,837
TATTNALL	3.1	7.9	8.4	36,193
TAYLOR	3.5	10.2	13.9	22,464
TELFAIR	2.7	6.4	6.5	28,026
TERRELL	3.0	8.3	11.2	24,381
THOMAS	3.6	9.8	11.1	187,333
TIFT	3.3	8.7	9.2	181,089
TOOMBS	3.5	9.1	8.8	113,075
TOWNS	2.7	6.5	6.5	33,596
TREUTLEN	2.9	7.2	8.4	10,918
TROUP	3.5	9.3	9.6	283,107
TURNER	2.7	7.0	7.5	21,132
TWIGGS	5.6	20.5	35.8	42,138
UNION	3.6	9.6	10.4	68,088
UPSON	3.4	8.2	7.1	91,608
WALKER	2.9	7.6	8.5	123,406
WALTON	3.1	7.6	7.2	160,191
WARE	3.5	8.9	7.8	161,234
WARREN	2.5	5.7	6.0	12,835
WASHINGTON	3.3	8.7	10.2	82,586
WAYNE	3.3	7.7	5.9	97,930
WEBSTER	3.6	10.1	13.2	2,340

County	Expected Revenue Loss	Worst-Case Revenue Loss Estimate	Percent of Tax Base at Greatest Risk	Revenue Loss Per One Percent Tax
WHEELER	2.8	7.2	8.3	8,938
WHITE	2.9	8.0	9.8	65,636
WHITFIELD	3.6	9.5	9.5	556,393
WILCOX	2.8	6.9	7.6	10,520
WILKES	3.0	7.9	9.4	31,669
WILKINSON	2.8	5.2	4.7	33,407
WORTH	2.6	7.0	7.8	37,090

Source: Author's calculations on Georgia Department of Revenue Data.

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